

Northern Rhodesia.

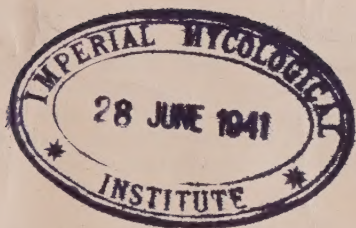
---

Department of Agriculture

---

# ANNUAL REPORT

for the year  
1940



---

Price : ONE SHILLING

---

LUSAKA :  
PRINTED BY THE GOVERNMENT PRINTER,  
1941.





# Northern Rhodesia.

## DEPARTMENT OF AGRICULTURE.

### Annual Report for the Year 1940.

In accordance with instructions this report is presented in abridged form. The issue of Agricultural Statistics forms to European farmers has been suspended during the war period. Reliable figures of the quantities of the more important crops produced for sale by farmers are, however, available from other sources.

#### AGRICULTURE IN THE TERRITORY.

The rains started early and were continued into April. The total precipitation was well above normal. Heavy and continuous rains in February and March reacted unfavourably on tobacco crops and reduced the yields of cereals in some Native areas, but on the whole the season was favourable.

##### *Maize.*

2. In the railway belt total production of maize for sale was as follows :

202,300 bags by Europeans.

118,200 bags by Natives.

Total 320,500 bags.

The appearance of the growing crop was deceptively good. European yields (estimated at 6.5 bags per acre) were above average but they were not what they promised to be. The Native output was disappointing even though it was some 54,000 bags higher than that of the preceding year, but it is noteworthy that those Natives who got their crop in early, and particularly those who applied manure, obtained most satisfactory yields. There is little doubt that the yield of the remainder would have been doubled by the adoption of similar methods.

3. Total consumption in the railway belt now approaches 350,000 bags. It has almost doubled during the last five years. Under the Maize Control Ordinance, the European producers' share of the internal market is now roughly 260,000 bags. When allowance is made for the large quantities of maize retained for farm consumption, approximately 50,000 acres would be required to meet the current demand in an average year. This is about 10,000 acres more than the average area planted in recent years. It seems probable that the Native crop will normally suffice for the Native share of the market but it cannot be relied upon to make good the European shortfall.

##### *Wheat.*

4. Wheat growers enjoyed their best season for several years. Abundance of water supplies enabled a larger acreage than usual to be planted and on the whole yields were good. Approximately 16,000 bags were sold. This quantity represents about 45 per cent. of the current internal consumption of flour.

##### *Groundnuts and Beans.*

5. There is still comparatively little response from groundnut producers to the scheme, inaugurated a few years ago, to stimulate the production of groundnuts and beans. With beans progress has hitherto been steady if somewhat slow, but a favourable season and increased interest in the railway belt led, this year, to an almost embarrassing degree of success. Some 15,000 bags were purchased, a quantity roughly equivalent to current consumption and 10,000 bags more than last year's total, but as heavy imported stocks were on hand from the previous season a large proportion of the local produce had to be exported. In order that future production should not be prejudiced by reduction of the price to which traders and Natives had become accustomed, a small export subsidy was paid by Government. Yields of beans vary enormously from season to season and the present saturation of the local market is not likely to be perpetuated unless acreages are considerably increased. Both groundnuts and beans are almost exclusively Native products. As a result of the scheme, which is simply the provision of an assured local market at the average price of imported beans and nuts, Native income from these products is now some £8,000 higher than in 1935.

##### *Tobacco: Eastern Area.*

6. The abnormally heavy rains in February and March did much to mar the season, reducing both quality and quantity. A few planters were fortunate in avoiding the worst of the weather and



these produced excellent crops. A number, however, had their worst season for several years. Owing to the war there were fewer buyers at the auctions. In all some 2,057,000 lbs. of leaf were sold at an over-all price of 10.2 pence per lb. Quota sales averaged 20.4 and non-quota sales 8.4 pence per lb.

*Tobacco : Western Area.*

7. In the Western Area the season, though at times difficult, was much more favourable. Yields were reasonably good and the quality of much of the crop was excellent. In all some 165,000 lbs. of leaf were produced of which 10,600 lbs. was Turkish tobacco. The bulk of the non-quota crop was sold on sample in the United Kingdom at satisfactory prices. Progress in the output of the Western Area is still very slow but quality has been improved remarkably.

*Coffee.*

8. There was a further decline in coffee production at Abercorn, the output being only 151 cwts. *Antestia* has now spread to all estates except one.

*The Red Locust (Nomadacris septemfasciata).*

9. Early in January a large flying swarm of Red Locusts passed south-west along the railway belt and did damage to young maize, but in most places the plants recovered. Hopper bands emerged in February and March. These were small in the railway belt but were considerably more extensive in the Luangwa Valley. At Chisamba egg laying had occurred in and near maize lands. A high percentage of the egg-pods was destroyed by an hymenopterous parasite, *Scelio howardi*, and the surviving hoppers were dealt with successfully by poison bait. Young flying swarms migrated to the west. Very few reports were received during the last three months of the year.

*The African Migratory Locust (Locusta migratoria migratorioides).*

10. This species had entered Abercorn District from Tanganyika Territory during the last quarter of 1939. A few more swarms entered in January. Egg laying was observed in Abercorn and Kasama Districts and hopper emergence in the former area was fairly extensive. A campaign was organised for the protection of Native food crops and this succeeded in averting serious damage. The young flying swarms were mostly small and they migrated westward. No report of the species has been received since July. Its distribution appears to have been confined to the Northern Province.

### THE WORK OF THE DEPARTMENT.

11. The fluctuating fortunes of war naturally reacted on the work of the department by creating conditions of unrest and uncertainty. In these difficult circumstances the steadiness of the staff was remarkable. All had volunteered for military service and were desperately anxious to be released yet almost all accepted their retention in their civil duties loyally and settled down steadily to their tasks. There were numerous staff changes among Agricultural Supervisors due to resignations and releases. Vacancies were temporarily filled by men ineligible for military service. At the end of the year the European personnel was :

Director.  
Assistant Director.  
Ecologist.  
5 Agricultural Officers.  
5 Agricultural Supervisors.  
2 Clerks.

12. Two new stations were opened at Monze and Magoye respectively to serve the maize area. At each of these a house was built departmentally and in these circumstances only exploratory work in these new areas could be attempted before the end of the year.

13. The prospect of land acquisition in the Eastern Province demanded the preparation of a large-scale Native land settlement project. Toward the end of the year the Assistant Director of Agriculture from Mazabuka and an Agricultural Officer from Lunzuwa were transferred to the Eastern Province to augment the existing staff. The land settlement "team" was further strengthened by the inclusion of the District Commissioner, Fort Jameson, who had been largely relieved of normal duties for this purpose.

14. Forestry continued to be administered as a sub-department. The year's work is briefly recorded in Part II of this report.

*Ecological Survey.*

15. The Ecologist returned from sick leave in April and completed the remaining field work of the survey of North-Eastern Rhodesia. The report on this area and a soil and vegetation map of the whole Territory are now in course of preparation.

*Cash Crops : General.*

16. In the past a considerable portion of departmental time and expenditure has been devoted to the development of Native cash crops. It is perhaps significant that the only substantial measure of success which has been achieved has been with previously existing crops grown for local consumption, and that with these all that was necessary to stimulate development was the provision of an assured market followed by a little propaganda and organisation. Of introduced crops grown for export only cotton and tobacco appear to have any prospect of substantial ultimate success. With these,



after some years of experimental work and close supervision of production, the maximum that has been achieved so far is an increase of the direct Native income, admittedly in areas in which income from local production was previously almost non-existent, of about £600 per annum. This figure does not cover the cost of the supervisory work necessary to produce it and compares most unfavourably with the additional £8,000 which this year accrued, with far less departmental effort, from increased production of groundnuts and beans alone.

17. The position would not be so unsatisfactory if there were reasonable prospects of early development of export crop production. Unfortunately, as a result of increased opportunities for earning in other directions, it seems probable that the infant cotton and tobacco industries, even with continued departmental supervision and encouragement, will stagnate at about their present level for the duration of the war. At the same time there is a heavy demand on all available departmental effort for the much more important task of preserving Native areas. At the end of the current season and in the light of the circumstances then existing, it will therefore be necessary to give serious consideration to the advisability of suspending work on export crops.

#### *Native Grown Tobacco.*

18. The exploratory development of Native-grown Burley tobacco was continued at Minga. There were 173 growers. Both yield and quality were surprisingly satisfactory in view of the season. Approximately 27,000 lbs. of leaf were purchased departmentally at an average price of 3.09 pence per lb. (equivalent to £2 per grower). The tobacco was subsequently transported to Fort Jameson, graded, baled and finally sold at a small profit, if supervision costs are disregarded. The growers were gratified at the result of their labours but, due to causes beyond departmental control, there has been but a slight increase in their number in the current season.

#### *Cotton.*

19. Cotton growing was confined to the Marambo area of the Luangwa Valley. The number of growers rose from the 250 of the previous year to about 700, but unfortunately the torrential rains of February and March caused the first bad season yet experienced. The total crop of 80,000 lbs. seed cotton was little more than that of the former year and the average pay-out came to only 7s. 1d. per grower. For the first time growers were dissatisfied and there has been a reduction in their number. The recent tendency of adult males to return to the Valley has ceased and an outward drift has restarted. This is not connected with the comparative failure of the cotton crop, for a similar change has been noted elsewhere, but it has deferred for an indefinite period the prospect of building up an industry of commercial proportions.

#### *Beeswax.*

20. Development of beeswax production continued under the supervision of District Commissioners aided by funds granted by the Native Development Board. The Assistant Director made an extensive tour of development areas between May and August and submitted recommendations involving some re-organisation of the work. In general, the progress in the Northern, Eastern, Central and Southern Provinces has been disappointing, but, when allowance is made for violently fluctuating bee-seasons, it has been most satisfactory in the Barotse and Kaonde-Lunda Provinces. Mr. Allan was able to compile accurate estimates of production, exclusive of smuggled exports, in recent years:

| Year                               | 1935 | 1936 | 1937   | 1938   | 1939   | Total  |
|------------------------------------|------|------|--------|--------|--------|--------|
| Production (cwts.) ...             | 277  | 431  | 781    | 673    | 611    | 2,773  |
| Direct cash return to producer ... | £400 | £800 | £1,500 | £1,500 | £1,600 | £5,800 |

Prior to 1934 the average annual production was but 12 cwts. The recent decline is accounted for by the temporary failure of Balovale supplies which dropped from 395 cwts. in 1937 to 51 cwts. in 1938 and 29 cwts. in 1939. The bee population of the district had been decimated by two disastrous seasons but rapid recovery is now taking place.

#### *Experimental Work.*

21. The need for concentrating on the reclamation and preservation of Native areas compelled a curtailment of the experimental programme. Of the year's results the most noteworthy was that from a 9×9 Latin square experiment at Lunzuwa. In this the effect of ash and burning, singly and in combination and in single and double doses, was determined on "Male" (*Eleusine coracana*) yields. The results showed clearly that the effects of ash alone and burn alone were approximately equal, giving yields of about 1,200 lbs. grain per acre. The combination of ash and burn, the normal chitemene practice, yielded about 2,200 lbs. grain per acre. Double quantities of ash and double intensities of burn gave little additional yield over corresponding single and combined treatments in which normal quantities were used. In the absence of both ash and burn yields were negligible. Apart from the advance made toward a better understanding of the Chitemene system, the results have a distinct practical bearing. It seems probable that Native practice would be improved if low bunds were made in and around the areas to be burnt in order to check the washing of ash from the burnt gardens.

22. A further result of interest was the proof of the persistent effect of the combination of ash and burn. In the 1935-36 season the digging (Mambwe) system was tested against normal Chitemene



on typical chitemene soils at Lunzuwa. Since then both series of plots have been treated identically with the following results :

|         |     |     |     |     |     |     | Yield of "Male" in lbs. per acre. |                                      |
|---------|-----|-----|-----|-----|-----|-----|-----------------------------------|--------------------------------------|
|         |     |     |     |     |     |     | Dug Plots                         | Plots burnt<br>1935 and<br>since dug |
| 1935-36 | ... | ... | ... | ... | ... | ... | negligible                        | 1,618                                |
| 1936-37 | ... | ... | ... | ... | ... | ... | Beans                             | Beans                                |
| 1937-38 | ... | ... | ... | ... | ... | ... | 440                               | 1,474                                |
| 1938-39 | ... | ... | ... | ... | ... | ... | Beans                             | Beans                                |
| 1939-40 | ... | ... | ... | ... | ... | ... | 585                               | 1,200                                |

Satisfactory "male" yields are, of course, obtained without any burn at all (Mambwe system) on soils of a better class, and at Shiwa, Mrs. Gore-Browne has shown that the superiority of the Chitemene system is not nearly so marked as at Lunzuwa, even on poor soils on which the Chitemene system is traditional.

#### *Reclamation and Preservation of Native Areas.*

23. The different approaches to this problem, as governed by different conditions, and the reasons for the concentration of effort on three areas have been given in full in previous reports. Soil conservation works by themselves will be of little ultimate avail if they are not combined with the adoption of methods which will preserve the fertility of the protected land. The adoption of the latter more or less sets the pace for the former. This in part accounts for the comparatively slow progress to date, but it must also be remembered that 1940 was the first year in which anything approaching a "drive" became possible.

##### *(a) The Maize Belt.*

24. Here the success of demonstrations on a scatter of individual gardens had paved the way for the harmonious introduction of soil conservation measures on large blocks of arable land containing gardens of several individuals. The selection of the areas to be treated and, indeed, the planning of the works themselves was greatly aided by a preliminary study of aerial photographs. 64 miles of contour ridge and 18 miles of grass strips were laid out, mainly in the Mission-Pemba region. These works protect some 3,700 acres of garden. In addition, with the consent of the Native Authority, some 8,700 acres have been demarcated and set aside for permanent grazing and forest areas even though this involved the retirement from cultivation of 600 acres of unsuitably sited gardens. Over 70 gardens are being worked under an approved system incorporating crop rotation and the use of manure, and on many others these innovations have been adopted in part.

25. The effect of a combination of improved methods and soil conservation works is immediate and striking. In 1939 there were but 20 improved gardens. The maize yields on these before and after treatment were obtained by sampling, with the following results :

| Year.                      |     |     |     |     | Average yield of grain per acre. |
|----------------------------|-----|-----|-----|-----|----------------------------------|
| 1938-39 (before treatment) | ... | ... | ... | ... | 436 lbs.                         |
| 1939-40 (after treatment)  | ... | ... | ... | ... | 1,176 lbs.                       |

The second season was admittedly the better one, but the corresponding increase in average yield on unimproved gardens certainly did not exceed 150 lbs. An indication of the general trend in the area so far dealt with is given by the keen demand for kraal manure. Formerly this was entirely wasted ; now manure fetches from 5s. to 10s. per kraal and better methods of conservation will be needed if supply is to keep pace with demand.

26. With the consent and co-operation of the Missionary-in-Charge, Mr. Stickland, a model settlement was laid out at the Rees Memorial Mission near Kanchomba. This is at present occupied by two farmers and three departmental pupils.

27. North of the Kafue five unfortunately situated villages were permitted to move to a vacant Crown farm near Chipongwe. Sites for their gardens were laid out in narrow belts on the contour, separated by strips of untouched vegetation twenty yards wide. A demonstrator for the settlement is being trained at Kanchomba.

##### *(b) Abercorn and Isoka Districts (Northern Province).*

28. In these districts the main item of the programme has been the control of Chitemene in those areas which were rapidly becoming deforested. This is being effected by the allocation of a defined forest area to each village and by the orderly lopping of such areas on a 15 to 20 year rotation, combined with the fire protection of the regenerating annual blocks. The progress of this non-recurrent work has been thus :

| VILLAGE AREAS DEMARCATED. |                       |                    |        |  |
|---------------------------|-----------------------|--------------------|--------|--|
| Year.                     | Abercorn<br>District. | Isoka<br>District. | Total. |  |
| 1938...                   | 20                    | —                  | 20     |  |
| 1939...                   | 43                    | 16                 | 59     |  |
| 1940...                   | 61                    | 39                 | 100    |  |
| TOTAL                     | 124                   | 55                 | 179    |  |



The 1940 work was interrupted during the first three months of the year when the staff had to organise a locust destruction campaign. Nevertheless 432 miles of main boundary lines were surveyed and cut. For the latter task the villagers concerned provided 18,000 man-days of voluntary labour. The scheme has so far worked with remarkable smoothness. The completed villages are now anchored, as the preservation of the forest areas so vital to their mode of life has, it is hoped, been assured. The non-recurrent work of demarcation should be completed in 1941 and the staff will then be able to turn to more normal agricultural activities.

29. In addition to the safeguarding of Chitemene areas, some more orthodox soil conservation work has been started in the dug gardens. Two Native Authority seed and demonstration farms have been established under departmental supervision in Chinsali District and one in Abercorn District.

(c) *Eastern Province.*

30. Little reclamation and preservation work has hitherto been attempted in this Province as it was realized that such work could not, of itself, materially alleviate a position which could only be met by the provision of more land. Now that more land will shortly be made available, the main task is to plan the settlement of old and new areas to the best advantage. This task will occupy the available staff for some time but every opportunity is being taken to push on simultaneously with the protection of the more important areas. A start has been made in the densely populated and once highly fertile Chiparamba Valley (Fort Jameson district). Here an exploratory conservation scheme of orthodox type was laid out. In this area mound cultivation is traditional, a practice which leads to excessive run-off. Contour drains of standard proportions were hardly able to cope with the flow and they rapidly silted up, though had cultivation been on the flat they would have worked satisfactorily enough. Increase in size of drains and decrease in vertical interval would hardly be practicable, and alternative methods are being tested. The scatter of demonstration gardens in Fort Jameson Reserve II was maintained with success.

*Agricultural Education.*

31. In the Maize Belt the aim of any serious attempt at agricultural education must be to teach maize farming for profit. Here school vegetable gardens are of minor importance. The number of model maize farms established under departmental supervision at village schools and Mission stations was increased from 1 to 12 during the year. The majority were satisfactory and indeed were phenomenal in that the crops were outstandingly better than those of surrounding gardens. Under these conditions the school garden is indeed a mighty weapon in the cause of better agriculture, but how often in Africa do surrounding gardens shame the half-hearted efforts of the schools. To appreciate fully the progress which has been made it must be realized that the planting season coincides with school holidays. The scholars therefore must forsake their fathers' gardens and return to school. That they have done so in large numbers has involved some sacrifice on the part of both children and parents, and is perhaps a manifestation of faith in the method taught.

32. In the Northern Province, mainly a "subsistence area", the main function of the school garden is the development of subsidiary food-crop production. During the year an Agricultural Teacher Training Centre was established at Senga Hill. The centre will ultimately turn out fully qualified teachers who are also competent to develop school gardens for the purpose in view. In the meantime gardens have been established under departmental supervision at seven schools in the Northern Province.

33. Little has yet been done in the Eastern Province, but gardens have been started at the Ngoni and Chewa National Schools.

### LEGISLATION.

34. The following more important changes in agricultural legislation were made during the year :  
*Native Foodstuffs (Control of Acquisition) Ordinance, 1940.*

This Ordinance replaced the Native Grain Trading Ordinance. Power to control acquisition was extended to cover all foodstuffs used for human consumption.

*Public Lands Acquisition (Amendment) Ordinance, 1940.*

Powers under this Ordinance were extended to cover the acquisition of land "for or in connection with the constitution of Native Reserves".

*Importation of Plants (Dahlia) Regulations, 1940.*

These regulations prohibited the importation of Dahlia plants and tubers from the Union of South Africa. This prohibition was necessary because of the danger of the introduction of "Krom-nek"—a virus disease of certain plants, notably tobacco and tomatoes.

### PART II.—FORESTRY.

35. It is estimated that roughly two thirds of the total area of Northern Rhodesia is covered by tree growth. The Department can deal directly only with a very small proportion of this vast forest area of over 190,000 square miles. Its activities are concentrated in the two areas of greatest economic importance—the settled portion of the Railway Belt and the Mukusi (*Baikiaea plurijuga*) forests of the south western corner of the territory. Throughout most of the rest of the country the department can act only in an advisory capacity to Administrative and other departments.



36. Early in the year Mr. Seward, Forester, was released for military service and was not replaced. For the remainder of the year the European staff consisted of two Assistant Conservators and two Foresters.

*Demarcation of Forest Reserves.*

37. An addition of 2,000 acres to the Forest Estate was effected by the proclamation of Chondwe Forest Reserve. This area is to be used mainly as an accessory source of timber for the densely populated Swahili Native Reserve.

*Industries and Exploitation.*

38. (a) *Zambesi Saw Mills.*—This Company worked at full pressure throughout the year and employed an average of 103 Europeans and 400 natives. The exploitation of Kasika Forest (Sesheke District) was completed in August and operations were then transferred to Malavwe Forest. The exploitation of the small remaining part of Situmpa Forest (Livingstone District) was also completed. Exploitation was controlled by a Forester and a large native staff. Hauling and felling damage was at first heavy but was later reduced to reasonable proportions. The volume of Mukusi timber in the round extracted by the Company was :

|                             |     |     |     |     |     |           |         |
|-----------------------------|-----|-----|-----|-----|-----|-----------|---------|
| From the Sesheke Forests... | ... | ... | ... | ... | ... | 3,215,000 | cu. ft. |
| From Situmpa Forest         | ... | ... | ... | ... | ... | 292,100   | cu. ft. |
| TOTAL                       |     |     |     |     |     | 3,507,100 | cu. ft. |

The total output of sawn timber was :

|                                 |     |     |     |     |     |           |         |
|---------------------------------|-----|-----|-----|-----|-----|-----------|---------|
| Rhodesia Railways sleepers      | ... | ... | ... | ... | ... | 457,780   | cu. ft. |
| South African Railways sleepers | ... | ... | ... | ... | ... | 166,260   | cu. ft. |
| Mining and other timbers        | ... | ... | ... | ... | ... | 400,958   | cu. ft. |
| TOTAL                           |     |     |     |     |     | 1,024,998 | cu. ft. |

From operations in the Sesheke forests the Barotse Forest Fund received a gross revenue of £4,826.

(b) *Rhodesian Wood Industries, Ltd.*—This firm erected a ply-wood factory in Livingstone during the year but manufacture has not yet started. The firm extracted some 17,000 cubic feet of *Mungongo* (*Ricinodendron Rautanenii*), *Muzauli* (*Copaifera coleosperma*) and *Mukwa* (*Pterocarpus angolensis*) from Livingstone North Forest.

(c) *The Mines.*—While it is certain that the consumption of local timber by the copper mines increased considerably in 1940, no reliable figures can be given. The Roan Antelope and Nchanga mines continued to cut timber exclusively on their own land holdings. Nkana made greatly increased use of native wood and installed a breakdown saw and impregnation plant. Much of their timber was obtained from Nkana Area C Forest Reserve under rights then conferred by the Mining Proclamation. Under the same Proclamation, before it was amended, Broken Hill mine also obtained 2,300 cords of firewood and 4,000 cubic feet of mining poles free of charge from Crown Land. It is estimated that the total consumption of local mining timber during the year was 500,000 cubic feet, exclusive of firewood.

(d) *Other Exploitation.*—Apart from the above, wood cut under licence amounted to 14,500 cords of firewood and 20,000 cubic feet of saw timber and poles. The latter included 10,000 cubic feet of poles sold to a Belgian contractor for export to the Congo. In the early part of the year the Ndola saw-millers drew most of their supplies from the Congo.

*Imports and Exports.*

39. Details of imports and exports are regarded as confidential and cannot be published during the war.

**DIVISIONAL OPERATIONS : SOUTHERN DIVISION.**

40. The main work in this division was the control of exploitation of the *Baikiaea* forests and the fire protection of these forests, both exploited and unexploited. This was a full seed year for *Baikiaea*.

41. Mr. Martin's report on Forestry in Barotseland to which reference was made last year, was completed and submitted to Government. The report was illustrated by a 1 : 500,000 coloured vegetation map of Barotseland. 1 : 50,000 maps of the more important *Baikiaea* forests in Livingstone and Sesheke districts were also prepared.

*Fire Protection.*

42. In Livingstone and Sesheke districts 485 square miles of *Baikiaea* forest were successfully protected from fire by external and internal fire guards and constant patrolling. Only three small fires occurred during the year, one in Yeta's Forests and two in Malavwe Forest. These were extinguished before appreciable damage was done and the total area affected was only two square miles. Early burning was enforced under the Barotse Forest Laws in Mongu-Lealui, Kalabo, Senanga and part of Sesheke districts.

**DIVISIONAL OPERATIONS : NORTHERN DIVISION.**

43. In this division the maintenance of existing operations fully occupied the time of the staff.



#### Fire Protection.

44. Fairly intensive early burning was carried out over 130 square miles of forest reserve and 25 square miles of undemarcated forest. In addition, some 200 square miles of headwater areas in Ndola and Isoka districts were protected by rather more sketchy early burning. The District Commissioner undertook the supervision of the work in Isoka District.

#### Land Planning and Conservation Projects.

45. The Assistant Conservator spent three weeks with the Assistant Director of Agriculture in examining and reporting on the agricultural situation in Mishiri's section of the Lamba Native Reserve. In the course of this survey it was noted that efforts had been made by the people, on the advice of the Administration, to foster tree regrowth in abandoned gardens by deliberate early burning. In the Swahili Reserve the same practice, first adopted in 1939, was continued in 1940; but a similar scheme for the Lenje Native Reserve in Broken Hill district, for which some preparation had been made in the previous year, did not come to fruition.

#### Research.

46. All experiments were maintained and some extensions made in the trial plantations at Ndola where *Pinus khasya* was introduced, *P. arizonica* given a further trial, and *P. insularis* planted on a wider scale. As a result of early rains in October the Pines at Ndola survived the dry season in unusually good condition, but a light winter frost killed back one year old plots of *Maesopsis eminii*, *Gmelina arborea* and *Acrocarpus fraxinifolius*. The two latter species made good recovery later. At Mwinilunga an accidental fire caused serious damage to the Pine trials, and a number of these small plots will have to be written off.

47. The copper mines require a flotation agent for their extraction processes and normally use Pine Oil imported from America. In the rather remote hope that they might be able to thrive on the Copperbelt, the flotation-oil producing gums, *Eucalyptus radiata* and *E. dives*, were planted on an experimental scale.

48. Further efforts were made in the nursery to check the losses from damping-off amongst Pine seedlings and to obtain more regular germination of *Pterocarpus angolensis* seeds, but none proved of much avail.

49. In co-operation with the Roan Antelope Copper Mine an extensive series of observations on the rate of drying and the ability to absorb preservative solution of locally cut mining timbers was made throughout the year. The data so far recorded show that a period of between three and six months must be allowed between felling and treatment if satisfactory impregnation is to be obtained. The final observations will be completed early in 1941.

### LEGISLATION.

50. The drafting of a new Forests Ordinance was completed during the year and it is hoped that this long-awaited measure will be enacted by the Legislature in 1941.

51. An important forestry amendment was made to the Mining Proclamation (1912) in December. Under the Proclamation holders of registered mining locations were given the right to take timber free of charge for domestic and mining purposes from Crown Land open to prospecting. This right might have been a comparatively innocuous one had the mining industry of the territory remained in the hands of small and isolated workers as was anticipated when the Proclamation came into force, but the situation changed with the establishment of large mining companies having heavy and concentrated demands on Crown Forest. Until recently there was no occasion to adapt the law to the developments unanticipated in 1912, as there was virtually no accessible Crown Land open to prospecting. The extensive prospecting concessions lapsed, however, in 1940 and amendment of the law became a matter of urgency if control were to be retained by the Crown over vitally important timber supplies. The right of location holders to free timber from Crown Land open to prospecting was therefore removed by the amending legislation and in its stead location holders were given the right to take timber "subject to such conditions (including the payment of fee or royalty) as may be prescribed by the Governor". In addition, the taking of timber from Demarcated Forest was to be subject to the provisions of the Forests Ordinance.

52. Government has accepted the recommendations of a Select Committee, appointed to examine the Bill, that timber taken under the amended Proclamation should not be regarded as a source of revenue. Consequently the charges on such timber will be based on the estimated cost of regenerating the exploited areas.

MAZABUKA,  
28th March, 1941.

C. J. LEWIN,  
Director of Agriculture.



## APPENDIX.

Statement in Square Miles of Progress in Forest Reservation during the year ended  
31st December, 1940.

|                              |     |     |     |     |     | <i>On<br/>1st Jan.,<br/>1940</i> | <i>Added<br/>during<br/>year</i> | <i>On<br/>31st Dec.,<br/>1940</i> |
|------------------------------|-----|-----|-----|-----|-----|----------------------------------|----------------------------------|-----------------------------------|
| 1. NORTHERN DIVISION :       |     |     |     |     |     |                                  |                                  |                                   |
| <i>A.—State Forests :</i>    |     |     |     |     |     |                                  |                                  |                                   |
| (i) Production Reserves      | ... | ... | ... | ... | ... | 248                              | 3                                | 251                               |
| (ii) Protection Reserves     | ... | ... | ... | ... | ... | 137                              | ...                              | 137                               |
| <i>B.—Communal Forests :</i> |     |     |     |     |     |                                  |                                  |                                   |
| (i) Production Reserves      | ... | ... | ... | ... | ... | 10                               | ...                              | 10                                |
| (ii) Protection Reserves     | ... | ... | ... | ... | ... | 45                               | ...                              | 45                                |
| 2. SOUTHERN DIVISION :       |     |     |     |     |     |                                  |                                  |                                   |
| <i>A.—State Forests :</i>    |     |     |     |     |     |                                  |                                  |                                   |
| (i) Production Reserves      | ... | ... | ... | ... | ... | 8                                | ...                              | 8                                 |
| (ii) Protection Reserves     | ... | ... | ... | ... | ... | 381                              | ...                              | 381                               |
| <i>B.—Communal Forests :</i> |     |     |     |     |     |                                  |                                  |                                   |
| (i) Production Reserves      | ... | ... | ... | ... | ... | 500                              | ...                              | 500                               |
| (ii) Protection Reserves     | ... | ... | ... | ... | ... | ...                              | ...                              | ...                               |
| <i>Total</i>                 | ... | ... | ... | ... | ... | 1,329                            | 3                                | 1,332                             |

NOTE.—(1) Most Reserves are only partially demarcated and at this stage progress in demarcation cannot be indicated in terms of area.

(2) "Communal Forests" in Northern Division lie in Native Reserve and exist only on administrative fiat.

(3) "Communal Forests" in Southern Division lie in Barotseland and in Native Reserve and are established by Native law.

(4) The figure of 248 square miles of "State Production Forest" in Northern Division was given erroneously as 238 square miles in 1939 report.







